# RUAIRI GLYNN

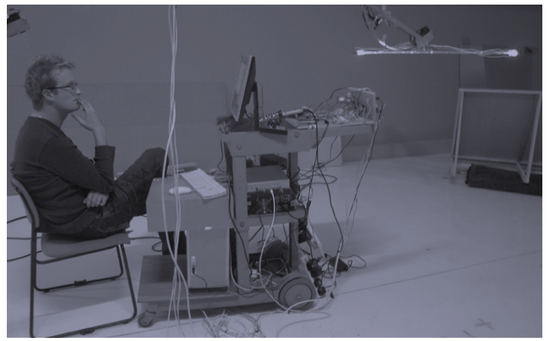
## BUILDS MACHINES THAT FORCE HIM TO GIVE UP CONTROL

Text **Terri Peters**
Photos **Ruairi Glynn**

**RUAIRI GLYNN.**

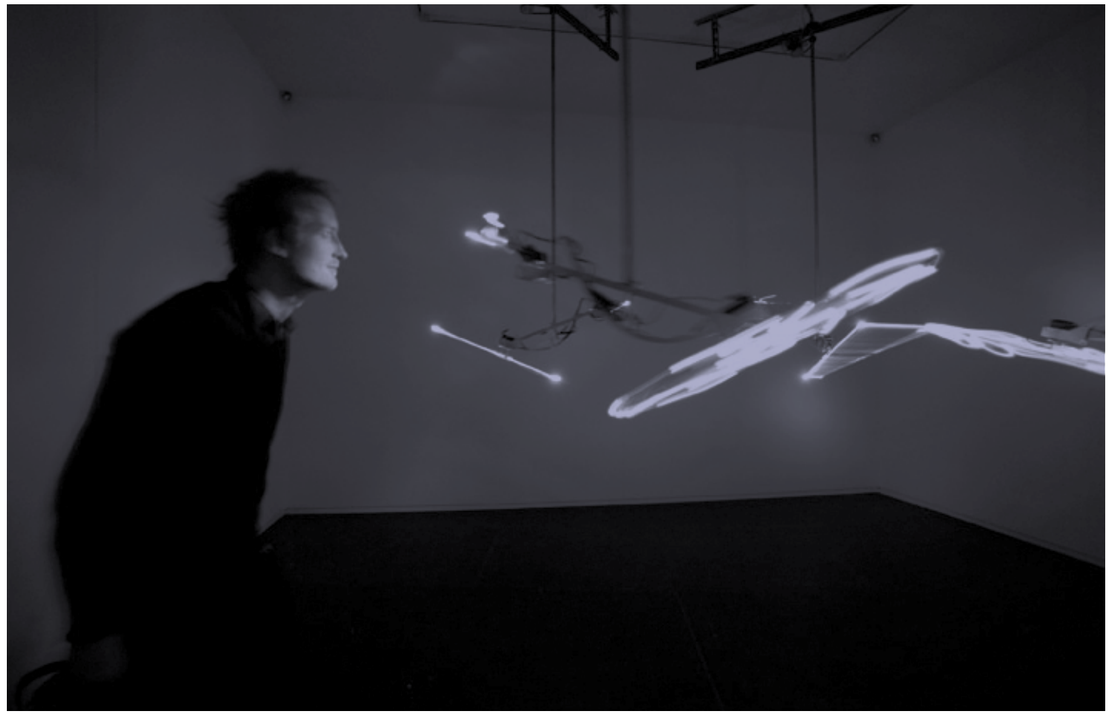
**Dancers**
**2008**

Within a darkened installation space, a dance evolves as a community of autonomous but very sociable robotic sculptures perform with their illuminated tails for inhabitants. Rather than being pre-choreographed, these creatures propose and negotiate with their audience, learning how best to attract and maintain their attention. Using a genetic algorithm to evolve performances, and facial recognition to assess attention levels, the individual dancers learn from their successes and failures. As they gain experience, they share their knowledge with the larger ecology, dancing to each other, exchanging their most successful techniques, and negotiating future performances collaboratively.



**‘There is a lot I don’t even want to know about engineering. When it accomplishes what I want, I move on’**

— Ruairi Glynn —

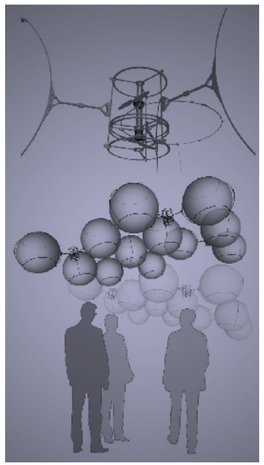


‘Everything I have ever built, moves,’ says 28-year-old Ruairi Glynn from his studio in central London at the Bartlett School of Architecture. The former student turned instructor combines his training in architecture and digital arts with expertise in computation and digital design, to create hybrid spatial experiences that challenge conventional notions of interactive design. ‘I think true interactivity is about an exchange of messages that you build into a design,’ says Glynn. ‘Using kinetics and through engaging with the body – rather than looking at a screen – it can become an ongoing exchange towards a truly interactive architecture.’ The various versions of his project *Performative Ecologies* have been exhibited in Seoul, São Paulo, Madrid, London, Vienna and Graz, and Glynn has just returned from installing it in Los Angeles, where it will be on show until May. The recent graduate may be just at the beginning of his career, but he is rapidly becoming known as one of the leading International practitioners of a new breed of multidisciplinary interactive design.

‘In school and in practice, I was taught that interaction is about being in control of something,’ he recalls. ‘It was taught as a purely reactive relationship: if you are controlling an interface and it does not do what you expect it to do, then it must be broken.’ He shakes his head. ‘I talk about this with my students all the time. I try to get them away from thinking it means “if I wave my hand at this it better do something”. Designers often say that their most creative moments are when something unexpected happens, when they make a mistake. I try to build machines that force me to give up control. If it doesn’t have the capacity to surprise me, I’m not interested.’

During his process of crossing disciplines Glynn founded a blog, InteractiveArchitecture.org, where he gathered knowledge about the common ground between digital art and architecture. ‘The blog became essential to my work. I created it because I couldn’t find a resource like this out there. At the beginning it was like my notebook.’ He was surprised at its instant success with architects, engineers, artists and students. ‘People starting contacting me and within the first year, 2005, I had more than a million hits. For three years, I was writing often four posts a week and there are more than 10,000 subscribers.’ Now, he writes less often and has two guest editors, and the content has changed along with his interests. ‘It used to be more about very broad ideas – but I think now it has matured, it is more focused on truly interactive environments. I’m interested in projects that move beyond what I call the first generation of interactive design, that suggest that architecture can be an active participant in social interactions.’

It was while still a student at the Bartlett that Glynn began developing *Performative Ecologies*, a kinetic installation that only exists, or performs, when there is a crowd. The installation consists of three sociable and rather competitive robotic sculptures, each with a long illuminated tail, that spin around a space, looking for visitors to interact with, vying for their attention. ‘Like needy children they are trying to draw people in and keep them there,’ says Glynn. Using a complex computational tool, a genetic algorithm, to evolve performances, and facial recognition technologies to assess attention levels, each robot learns and adapts its behaviour based on its experience with the visitors. The facial recognition software reads visitor’s reactions and the robots learn whether people are having a positive (smiling, moving closer) or negative (frowning, looking away, moving back) response. Children rush up to the robots and try to touch them, and adults are often initially wary. Glynn designs the visitor’s first viewing of the robots before they can actually interact with them. ‘On the outside of the space, screens show the faces of people »



**‘I believe in an architecture of bits and pieces, not only walls and ceilings’**

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inside the installation. It almost looks like CCTV monitors except they are focusing on the faces and people are making faces and playing around. Then when visitors go inside the space they realize they were looking at screens showing the robot’s point of view.’ This makes people aware that they are both watching and studying the robots and that the robots are learning from and watching them. ‘People end up in a kind of relationship with the robot, an unusual dynamic relationship and the robots with their buzzing, whirling motors begin to take on a personality of their own.’ The robots are surprisingly charming and lifelike. The ‘eyes’ were a happy design accident. Glynn was trying to arrange light sources in front of the cameras and to indicate that there was a front and a back, so that people could interact with it in a familiar way. He realized that the lights looked a lot like eyes. Then there’s the ‘tail’ that seems to wag like a happy puppy but also seems to swish like a dragonfly, depending on the robot’s mood. An iteration of the installation, *Dancers* (2008) recently won 2nd place at the prestigious VIDA Award in Madrid and Glynn has just returned from installing it in Los Angeles at the Beall Centre for Arts and Technology where it will be on show at the ‘Emergence: Art and Artificial Life’ exhibition until May 2010.

‘*Performative Ecologies* is actually a series of projects. While I was making the *Dancers* (2008) iteration, I realized I was building up a sort of family of projects in a similar language.’ Inspired by artists such Rafale Lozano Hemmer and Theo Jansen, who make multiple versions of a project, Glynn explains: ‘There could be 6, 7, 8, 9 of these and I don’t need to make a brand new name for each piece. It’s the same set of ideas explored in different ways, it’s about the process.’

An earlier iteration of *Performative Ecologies* Glynn calls *Angels* (2006). The project also investigates dynamic, spatial encounters between objects but here the project is about creating an architecture that is lighter than air. ‘It plays with the historically rigid

## Angels
**2006**

The initial concept of *Angels* developed out of a building proposal in which a conversation space could transform its spatial conditions in reaction to a set of protocols based on the inhabitants’ discourse. The constantly reconfiguring space was actuated by a series of agents that could descend, rise, approach and retreat from the people within the space as well as articulate a range of behaviours. These ‘gestures’ attempted to act as catalysts for the generation of new conversation and interaction. This investigation led to the exploration of LTA (Lighter Than Air) vehicles capable of acting independently or in flocks, constructing dynamic spaces for people to meet.



nature of architecture asking what are the possibilities of an architecture lighter than air and how could it be capable of sheltering us and even bringing communities together?’ Glynn imagined that there could be many of these machines, and that they could become a field of changeable spaces for interaction. Exhibited at the Bartlett, the machine had some technical issues and Glynn began to look to other alternatives for testing these ideas. ‘It’s just extremely difficult to actually keep machines that are lighter than air, helium being such a small particle, it always finds a way to leak out, and then it droops.’ And how to maintain a giant balloon? ‘There was some serious engineering behind it. I learned a lot making it and I knew that there was a lot I didn’t even want to know about the engineering – I decided it had accomplished what I wanted it to and I moved on . . .’

His next iteration was *Signallers* (2007), a study inspired by the experimental light tracing photography of Gjon Mili. Of particular interest

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was a 1942 photograph by Mili of two fencers, their gestures haloed by red streaks. ‘He really observed how the bodies move and there’s a moment that is captured in the photo, a wobble, where the trajectories move in relation to each other’s movements; they’re negotiating space between them and each other’s goals.’ The robotic armature moved an acrylic light rod that rotated and flipped, creating a dynamic version of Mili’s fencers, in a darkened room. ‘*Signallers* was built to explore the recording of gestural interactions between a robotic arm and human arm playing a series of games. However, it quickly became a project more about how a kinetic object could use these behaviours and learn from their successes and failures.’

‘I’m flirting with different disciplines. I don’t quite know where this is all going or which approach is best. It seems to be working quite well for me right now though.’ Glynn is not interested in overanalyzing his role within architecture, as an artist, designer or architect. ‘I call myself an installation »

artist – I think as an architect or industrial designer, your work has to stand for itself in many ways. As an artist, you're asking people to take your work at face value and respond to it – there is a history of ideas here, a process that the viewer becomes a part of. For me, this process in my work and how it is communicated is as important as the final work itself.'

Glynn's work has potential beyond academia and the art world in the context of contemporary architectural practice, as the profession becomes increasingly interested in computation, digital design and adaptive systems. 'The building of participating systems, using genetic algorithms and machines with sensing and actuation systems, these sound more like what you would expect at a robotics lab, but they're concepts and technologies that are increasingly being taught to architects,' says Glynn. 'At the Bartlett for the past two years I've been teaching future architects skills with which to build their own software and hardware, with the goal of enabling new ways of thinking and practicing architectural research and design.' In the MSc in Adaptive Architecture and Computation course, Glynn teaches basic principles of programming and electronics to students who use them to design architecture that incorporates adaption, performance and interaction. 'I believe in an architecture of bits and pieces, not only walls and ceilings. I guess that is why I teach architecture but also textile and industrial design.' At Central St Martins, he teaches designers to look more at embedding technology and intelligence into materials than making machines that move, but the concepts relate. 'I think this adds to an ecology of parts that we could eventually make architecture out of.'

Through his teaching, he shows his students how his understanding of interaction and adaptation could apply to how resources are used, security and shelter, environmental criteria and aesthetic ideas. 'If building components can learn and adapt, in many situations this could be very useful,' says Glynn, 'although not in every case. Of course you want an elevator to behave in the same way every time, up and down with no instability.' It is not about creating alien environments or strange relationships between humans and machines, but about creating dialogue where appropriate, to create better environments. 'I see architecture as an ecology of simple communicating objects. This isn't new. Look for example to what Peter Cook, Cedric Price and others did in the 1960s. Architecture that is alive is more exciting – there is more to architecture than just designing buildings.'

The way we use the word interactive in an architectural context is stifling, he says. 'Yes, I am a bit militant about the word, but I think the architectural community needs to consider these ideas as we imagine future buildings and cities. This is the community I am trying to communicate with. I think real interactivity is the future of architecture.' «

**www.ruairiglynn.co.uk**

## 'Architects increasingly learn to build participating systems'

— Ruairi Glynn —

## 'Architecture that is alive is more exciting'

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### Signallers
**2007**

*Signallers* was initially an investigation of generating kinetic behaviour for use in a robotic armature through the use of light source tracking. It quickly became a project more about how a kinetic object could use this behaviour and learn from its successes and failures. Inspired by the experimental light tracing photography of Gjon Mili, *Signallers* was an environment made up of a darkened room with a robotic armature centred within it. The armature actuated a light source on the tip of an acrylic rod with a range of 360 degrees.